



NDCEE

National Defense Center for Energy and Environment

Use of Technology for More Efficient Waste Management

Mr. Don Sullivan, Ft. Carson

Mr. Steve Paff, Enviance, Inc.



DoD Executive Agent

Office of the
Assistant Secretary
of the Army
(Installations and
Environment)

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Technology Transition – Supporting DoD Readiness, Sustainability, and the Warfighter

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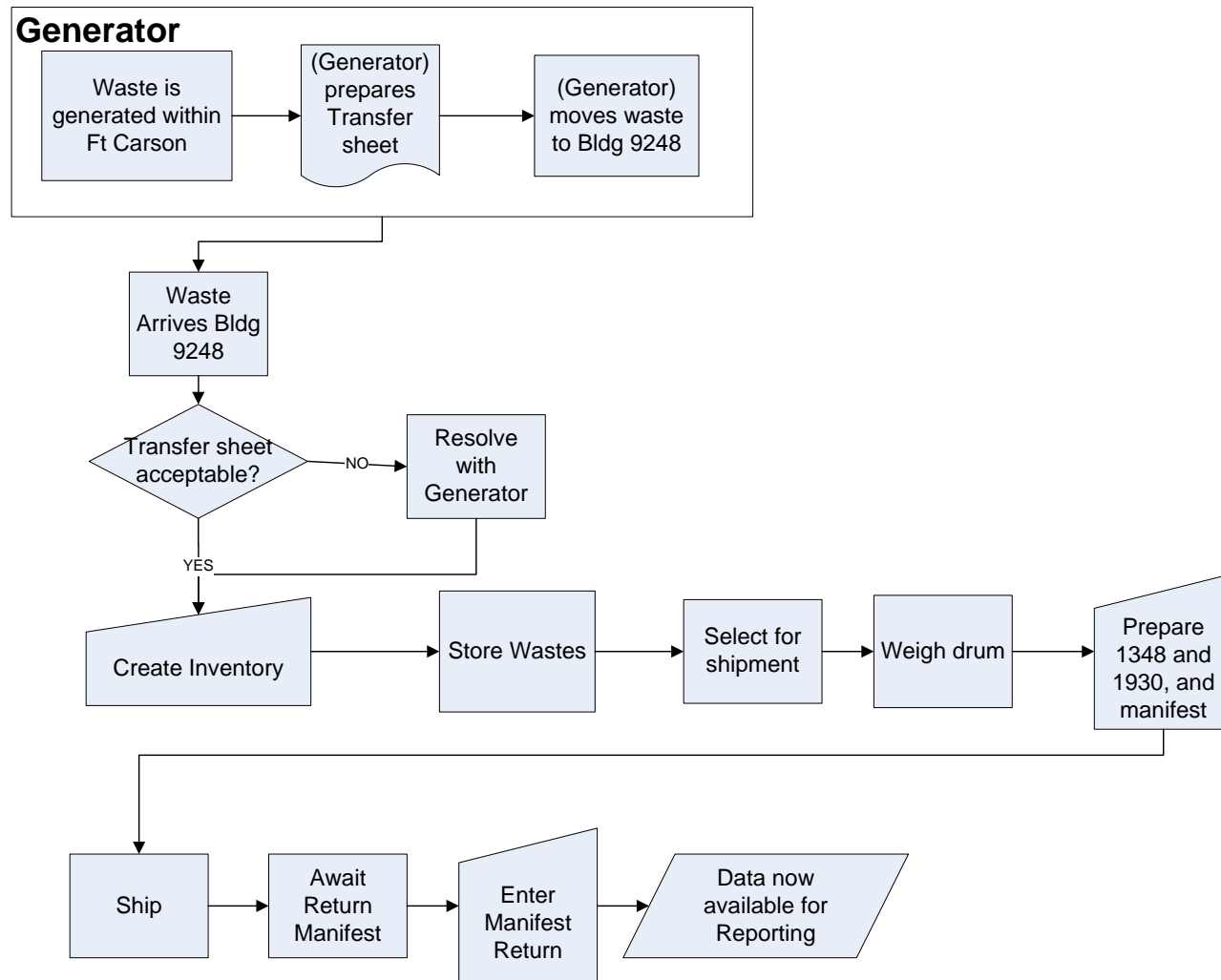
Overview

- Waste Management at Ft. Carson
- Software tracking system
- Tracking system benefits

Waste Management at Ft. Carson

- 220 square mile base
- Over 80 units or buildings that may generate waste
- Over 80 Manifests in 2008
- Over 30 tons hazardous and non-hazardous wastes
- Ambitious Pollution Prevention Goals

Waste Management Business Process at Ft Carson (using software)

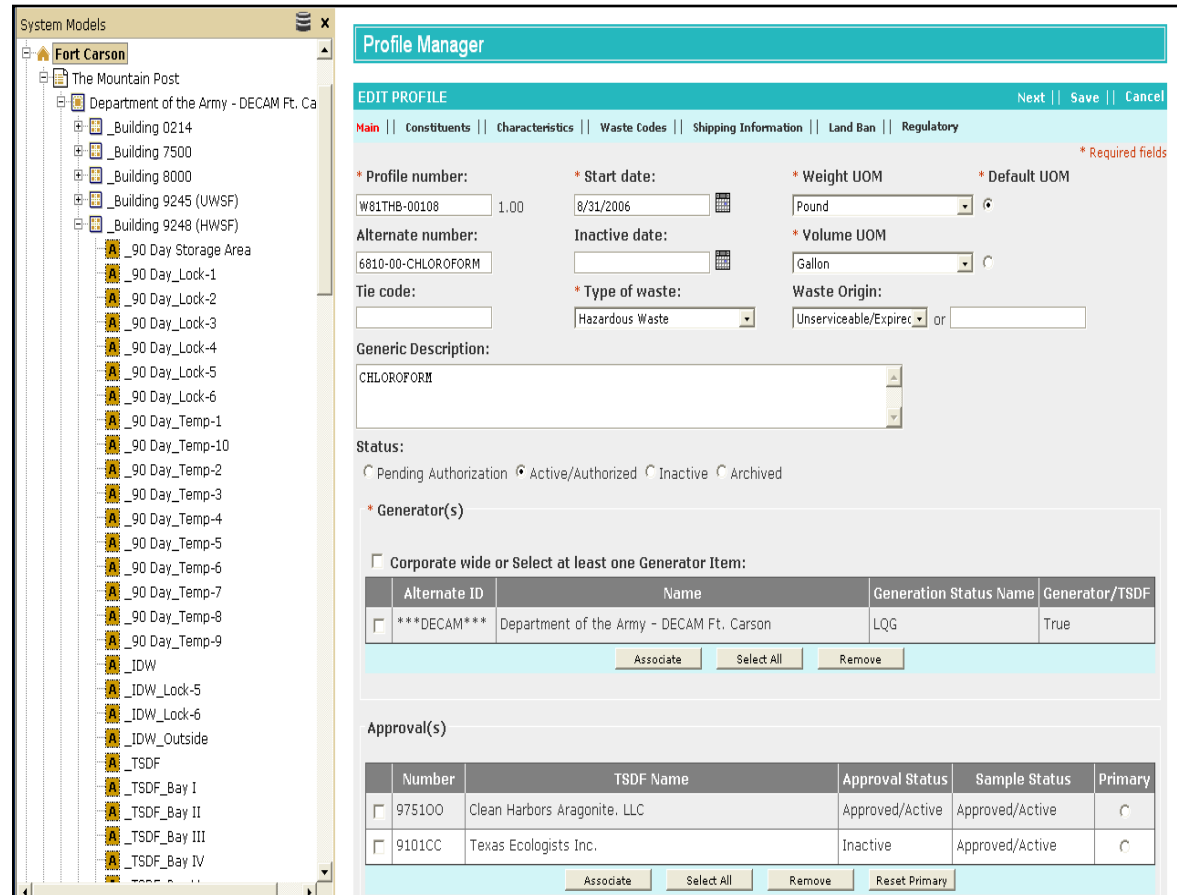


Ft. Carson Waste Reduction Goals

- Reduce Hazardous Waste disposal 30% by 2012
- Eliminate Hazardous Waste by 2027

Waste Management Software System at Ft. Carson

- Starting in 2006, Ft. Carson began to use Enviance Waste Manager System
- Major Purposes:
 - Streamline operations
 - Improve accuracy
 - Provide basis for reduction



System Models

- Fort Carson
 - The Mountain Post
 - Department of the Army - DECAM Ft. Ca
 - _Building 0214
 - _Building 7500
 - _Building 8000
 - _Building 9245 (UWSF)
 - _Building 9248 (HWSF)
 - _90 Day Storage Area
 - _90 Day_Lock-1
 - _90 Day_Lock-2
 - _90 Day_Lock-3
 - _90 Day_Lock-4
 - _90 Day_Lock-5
 - _90 Day_Lock-6
 - _90 Day_Temp-1
 - _90 Day_Temp-10
 - _90 Day_Temp-2
 - _90 Day_Temp-3
 - _90 Day_Temp-4
 - _90 Day_Temp-5
 - _90 Day_Temp-6
 - _90 Day_Temp-7
 - _90 Day_Temp-8
 - _90 Day_Temp-9
 - _IDW
 - _IDW_Lock-5
 - _IDW_Lock-6
 - _IDW_Outside
 - _TSDF
 - _TSDF_Bay I
 - _TSDF_Bay II
 - _TSDF_Bay III
 - _TSDF_Bay IV

Profile Manager

EDIT PROFILE Next | Save | Cancel

Main | Constituents | Characteristics | Waste Codes | Shipping Information | Land Ban | Regulatory

* Required fields

* Profile number: W81THB-00108 1.00 * Start date: 8/31/2006 * Weight UOM: Pound * Default UOM: Gallon

Alternate number: 6810-00-CHLOROFORM Inactive date: * Volume UOM: Gallon

Tie code: * Type of waste: Hazardous Waste Waste Origin: Unserviceable/Expires or

Generic Description: CHLOROFORM

Status: ☐ Pending Authorization ☒ Active/Authorized ☐ Inactive ☐ Archived

* Generator(s)

☐ Corporate wide or Select at least one Generator Item:

Alternate ID	Name	Generation Status Name	Generator/TSDF
<input type="checkbox"/> ***DECAM***	Department of the Army - DECAM Ft. Carson	LQG	True

Associate Select All Remove

Approval(s)

Number	TSDF Name	Approval Status	Sample Status	Primary
<input type="checkbox"/> 975100	Clean Harbors Aragonite, LLC	Approved/Active	Approved/Active	<input type="radio"/>
<input type="checkbox"/> 9101CC	Texas Ecologists Inc.	Inactive	Approved/Active	<input type="radio"/>

Associate Select All Remove Reset Primary

Enviance Waste Manager System

- Web-based
- Comprehensive
- Flexible and configurable
- Military capable

Calendar

Desktop

Profile

Help

Log Out

Message Center

Task Manager

Template Manager

Company Manager

Waste Detail Manager

Shipment Manager

Report Manager

Document Manager

Admin/Security Manager

powered by:

enviance

System Models

Fort Carson

The Mountain Post

Department of the Army - DEC

_Building 0214

_Building 7500

_Building 8000

_Building 9245 (UWSF)

_Building 9248 (HWSF)

_90 Day Storage Area

_90 Day_Lock-1

_90 Day_Lock-2

_90 Day_Lock-3

_90 Day_Lock-4

View Data Manager

VIEW CONTAINER DATA

Page: 1 of 1

Alternate Number	Number	Days On Site	Status	Weight	Weight UOM	Storage Date	Profile Number	Profile Description	Accumula
225A	8177-4000A	111	In Inventory	33.0	Pound	6/25/2008	W81THB-010	Used/Spent Thinner (BLDG 8000)	6/25/2008
225B	8177-4000B	111	In Inventory	30.0	Pound	6/25/2008	W81THB-010	Used/Spent Thinner (BLDG 8000)	6/25/2008
308	8225-4000	63	In Inventory	0.0	Pound	8/12/2008	W81THB-015	NiCad Battery	8/12/2008

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Waste Management System

- Tracks waste storage (containers)
- Tracks storage times
- Provides easy method for auditing container status
- Ties containers back to their generating unit
- Allows easy entry of relevant Turn-in sheet data
- Tracks types of wastes and quantity

View Data Manager									
VIEW CONTAINER DATA									
Page: 1 of 1							1		
Alternate Number	Number	Days On Site	Status	Weight	Weight UOM	Storage Date	Profile Number	Profile Description	Accumu
003	9007-4000	81	In Staging	379.0	Pound	1/7/2009	W81THB-024	Solvent Distillation Still Bottoms (Bldg 3711)	1/7/2009
005	9008-4000	80	In Staging	230.0	Pound	1/8/2009	W81THB-023	Used Methanol (Hospital Lab)	1/8/2009
006	9008-4001	80	In Staging	83.0	Pound	1/8/2009	W81THB-105	Xylene Waste (Hospital Lab)	1/8/2009
020	9020-4000	68	In Inventory	207.0	Pound	1/20/2009	W81THB-012	Heptane (BLDG 8000)	1/20/2009
032	9030-4000	58	In Inventory	9.0	Pound	1/30/2009	W81THB-00004	Used Solvents (STP) Lab	1/30/2009
040	9043-4000	45	In Inventory	45.0	Pound	2/12/2009	W81THB-100	Used Titrator from AOAP Lab	2/12/2009
041	9043-4001	45	In Inventory	45.0	Pound	2/12/2009	W81THB-100	Used Titrator from AOAP Lab	2/12/2009
042	9043-4002	45	In Inventory	43.0	Pound	2/12/2009	W81THB-100	Used Titrator from AOAP Lab	2/12/2009

System Models									
Fort Carson									
The Mountain Post									
Department of the Army - DEC									
_Building 0214									
_Building 7500									
_Building 8000									
_Building 9245 (UWSF)									
_Building 9248 (HWSF)									
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_90 Day_Temp-10									
_90 Day_Temp-2									
_90 Day_Temp-3									
_90 Day_Temp-4									
_90 Day_Temp-5									
_90 Day_Temp-6									
_90 Day_Temp-7									

Waste Container Tracking: Optimized for Ft. Carson and Department of Defense Activity Address Code (DoDAAC)

Custom Fields

Container

Generating Building and Unit
Bldg 8000 DOL/AOAP Lab

Alternate POC
Alternate POC Phone Number

APC
B101

Chain of Command Battalion/Civilian Division Level
AOAP Lab or

Chain of Command Brigade/Directorate/Tenant Level
Directorate of Lo or

Chain of Command Company/Branch Level
-- SELECT -- or

Chain of Command Major Command/Garrison Level
Garrison or

DODAAC
W90AWB

Generating Building
Bldg 8000

Generating Unit
AOAP Lab

Primary POC
Tom Trowell

Primary POC Phone Number
526-4991

- Custom fields to customize tracking of generating unit and other data from the Turn-in sheet *for each container*
- Similar approach to track National Stock Numbers (NSN), Contract Line Item Numbers (CLIN) and related data on each waste profile
- Allows waste to be tracked back to generating unit
- Improves data consistency and control of CLIN and other important data

Interacting with Defense Reutilization and Marketing Office (DRMO)

Batch Manager

EDIT BATCH Save || Cancel *Required Fields

* Number

* Generator Department of the Army - DECAM Ft. Carson Select

Group Reference or

Created Date 1/9/2009 2:48 PM

Created By Cavanaugh, Robert

Items

Select	Number	Profile Number	Parent Name	Type	Container Type	Waste Type
<input type="checkbox"/>	4132-980-PPE	W81THB-390 (version 1.00)	None given	Container	DM	Other
<input type="checkbox"/>	9079-4001	W81THB-023 (version 1.07)	_Building 9248 (HWSF)_90 Day_Lock-1	Container	DM	Hazardous Waste
<input type="checkbox"/>	9056-4001	W81THB-109 (version 1.00)	_Building 9248 (HWSF)_90 Day_Lock-1	Container	DM	Hazardous Waste
<input type="checkbox"/>	9030-4000	W81THB-00004 (version 1.03)	_Building 9248 (HWSF)_90 Day_Lock-1	Container	DF	Hazardous Waste
<input type="checkbox"/>	9043-4002	W81THB-100 (version 1.00)	_Building 9248 (HWSF)_90 Day_Lock-1	Container	DM	Hazardous Waste

* One or more items associated to batch are shipped

Apply selected action after save

- Group one or more containers
- System creates DRMS-1930 and DD-1348-1A forms required by DRMO
- User prints the 1348 and 1930 reports for DRMO
- DRMO arranges the shipment and prepares the manifest
- Track the manifest in the system

DRMS-1930 and DD-1348-1A Forms

- Formerly hand-written or manually created
- Now automated

1930 and 1348 Report		
HAZARDOUS WASTE PROFILE SHEET		
PART I		
A. General information		Waste profile no.
1. Generator's name Department of the Army - DECAM Ft. Carson		W81THB-390
2. Facility address		3. Generator USEPA ID CO22100201
1638 Elwell Street Bldg 6236 Fort Carson CO		4. Generator state ID
5. Zip code		
80913		
6. Technical contact	7. Title	Phone
B. 1. Name of waste IDW Non-Hazardous		
2. USEPA /or /State waste codes		
3. Process generating waste IDW		
4. Projected annual volume/units	5. Mode of collection DF	
6. Is this waste a dioxin listed waste as defined in 40 CFR 261.31? (e.g., F020, F021, F022, F023, F026, F027 or F028) <input type="radio"/> Yes <input checked="" type="radio"/> No		
7. Is this waste restricted from land disposal? (40 CFR 268) <input type="radio"/> Yes <input checked="" type="radio"/> No		

Shipment Tracking

Shipment

SHIPMENT RECORD: Main

Next || Save || Cancel

Main

Manifest Information

Total Costs

Associations

* Required field

General Information

Shipment Status: on hold

* Shipment Number

D0014

Date/Time Shipped

2/24/2009

12:00 AM

Type of Shipment

Hazardous

☐ Same as UHM No.

☒ On Hold

☐ No Shipment return

* Generator

☐ Preprinted Details

Name

Department of the Army - DECAM Ft. Carson

Street

1638 Elwell Street

Bldg

6236

City

Fort Carson

State

CO

ZIP

80913

Line Items

	DOT Shipping Description	Shipment By	Number of Containers	Container Type	Quantity	UOM	Line #	
<input type="checkbox"/>	RQ, UN3432, Polychlorinated biphenyls, solid, 9, PGII	Container	1	DF	610	Pound	1	Print Labels
<input type="checkbox"/>	RQ, UN3432, Polychlorinated biphenyls, solid, 9, PGII	Container	1	DF	601	Pound	2	Print Labels
<input type="checkbox"/>	RQ, UN3432, Polychlorinated biphenyls, solid, 9, PGII	Container	1	DF	603	Pound	3	Print Labels

- Tracks shipments
- Associates containers with shipments
- Tracks Manifest returns
- System notifies generator if manifest not returned within 30 days
- Can create exception reports for un-returned manifests

Reporting

- Biennial
- User defined reports
- Custom reports
- Shipment reports
- Numerous standard and customized reports available
- Report format in HTML or Excel
- Daily Inventory Reports for Fire Department

Report Manager	
Approval Report	Custom Report
Audit Report	Annual Report
Batch Report	Biennial Report
Company Report	PCB Annual Document Report
Destruction Report	Received PCB or PCB Items
Disposal Report	Shipped PCB or PCB Items
Generator Report	Schedule B - Fees Summary Sheet
Inventory Report	Schedule G - Generator Fee Schedule
Profile Report	Hazardous Waste Generator Fee Prepayment
Sample Report	Hazardous Waste Generator Fee Return
Security Report	Tax Report
Spill Report	Waste Reduction - SPR (SB14) Report
Tank Report	Waste Reduction Goal Report
Task Report	
Waste Report	
Shipment Report	
Shipment Receiving Report	
Shipment Return Report	
Custom Field Report	

Financial Accountability to Generators

- System allows waste to be tracked back to Generating Unit
- Allows for charge-back to the generator
- Provides an incentive for the generator to reduce waste generation (for those required to pay for disposal)

Date Placed	Generating Unit	Generating	Profile Description	Pounds	Profile EPA	CLIN	Disposal Cost Per Pound	Disposal Cost
1/6/2009	DPW-ENV	Bldg 9248	Fluorescent Lamps	538		9800UL	1.51	812.38
1/6/2009	DPW-ENV	Bldg 9248	PCB Articles Ballasts	610	PCB 1	7014AA	1.25	762.5
1/7/2009	DPW-ENV	Bldg 9248	Solvent Distillation Still Botto	379	D001	910200	1.19	451.01
1/8/2009	MEDDAC-2 (lab)	Bldg 7500	Used Methanol (Hospital Lab)	230	F003,D001	950100	1.75	402.5
1/8/2009	MEDDAC-2 (lab)	Bldg 7500	Xylene Waste (Hospital Lab)	83	F003,D001	950100	1.75	145.25
1/16/2009	DPW-ENV	Bldg 9248	Fluorescent Lamps	539		9800UL	1.51	813.89
1/20/2009	AOAP Lab	Bldg 8000	Heptane (BLDG 8000)	207	D001,D008	910200	1.19	246.33
1/20/2009	DPW-ENV	Bldg 9248	PCB Articles Ballasts	601	PCB 1	7014AA	1.25	751.25
1/21/2009	FLRC	Bldg 0749	Silicon Brake Fluid	254	N001	990200	0.99	251.46
1/21/2009	FLRC	Bldg 0749	Used Grease	429	N001	990400	0.94	403.26
1/21/2009	KI/DOL MAINT PAINT SH	Bldg 8000	Used Grease	373	N001	990400	0.94	350.62
1/21/2009	KI/DOL MAINT PAINT SH	Bldg 8000	Used Grease	441	N001	990400	0.94	414.54
1/21/2009	KI/DOL MAINT PAINT SH	Bldg 8000	Used Grease	371	N001	990400	0.94	348.74
1/23/2009	MEDDAC-1 (warehouse)	Bldg 7500	Used fixer (Hospital)	250	D011	940200	0.96	240
1/29/2009	DPW-ENV	Bldg 9248	PCB Articles Ballasts	603	PCB 1	7014AA	1.25	753.75
1/30/2009	FCSS	Bldg 3900	COD Digestion Solution	9	D011,D002,D003	920100	1.95	17.55
1/30/2009	FCSS	Bldg 3900	Nessler's Reagent (STP LAB)	10	D002,D009	920100	1.95	19.5
1/30/2009	FCSS	Bldg 3900	Used Solvents (STP) Lab	9	F003,D001	950100	1.75	15.75

Benefits of the Software System

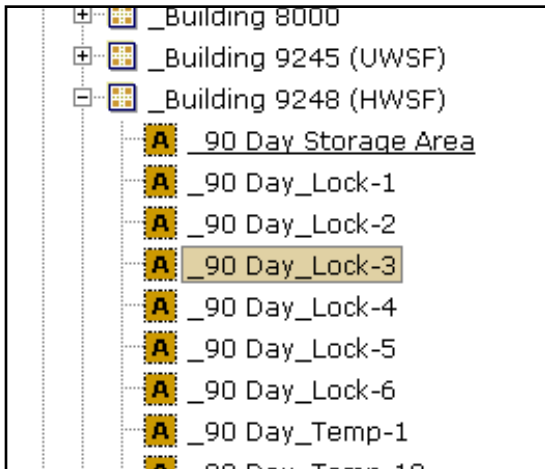
- Reduce risk to the site by improved data quality
- Increased efficiency
- Data to be used to publish progress towards Hazardous Waste reduction goals, and identify challenges in reaching them

Improved Data Quality for Waste Management

- Streamlined profiling reduces the number of waste profiles
- Automatic generation of 1348 and 1930 reduces data entry errors

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994.	995.	996.	997.	998.	999.	1000.	1001.	1002.	1003.	1004.	1005.	1006.	1007.	1008.	1009.	1010.	1011.	1012.	1013.	1014.	1015.	1016.	1017.	1018.	1019.	1020.	1021.	1022.	1023.	1024.	1025.	1026.	1027.	1028.	1029.	1030.	1031.	1032.	1033.	1034.	1035.	1036.	1037.	1038.	1039.	1040.	1041.	1042.	1043.	1044.	1045.	1046.	1047.	1048.	1049.	1050.	1051.	1052.	1053.	1054.	1055.	1056.	1057.	1058.	1059.	1060.	1061.	1062.	1063.	1064.	1065.
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Efficiency Improvements

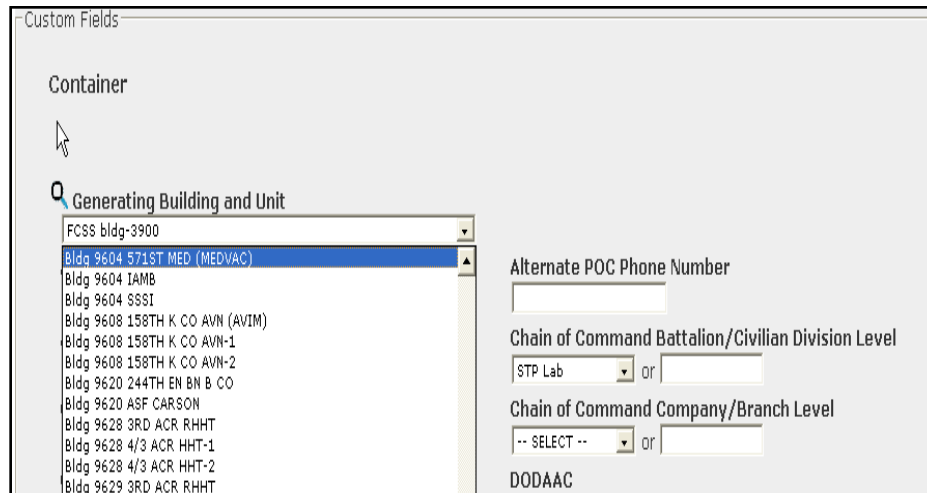


■ Simplified container tracking:

- Create containers at the main storage location
- Specify where they are stored using a tree structure

■ Allows Administrator access (and control over) code tables

- Consistency



Efficiency Improvements (cont)

- Biennial Report:
 - Stream-lined creation of Biennial
 - Audit report allows for QA of Biennial data

Biennial Report		
Back Cancel		
OMB#: 2050-0024 Expires 11/30/2009		
SEND COMPLETED FORM TO: The Appropriate State or EPA Regional Office.	United States Environmental Protection Agency RCRA SUBTITLE C SITE IDENTIFICATION FORM	
1. Reason for Submittal (See instructions on page 9) MARK ALL BOX(ES) THAT APPLY	Reason for Submittal: <input type="checkbox"/> To provide Initial Notification of Regulated Waste Activity (to obtain an EPA ID Number for hazardous waste, universal waste, or used oil activities) <input type="checkbox"/> To provide Subsequent Notification of Regulated Waste Activity (to update site identification information) <input type="checkbox"/> As a component of a First RCRA Hazardous Waste Part A Permit Application <input type="checkbox"/> As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment # _____) <input checked="" type="checkbox"/> As a component of the Hazardous Waste Report	
2. Site EPA ID Number (page 10)	EPA ID Number CO2210020150	
3. Site Name (page 10)	Name: Department of the Army - DECAM Ft. Carson	
4. Site Location Information (page 10)	Street Address: 1638 Elwell Street Bldg 6236	
	City, Town, or Village: Fort Carson	State: CO

Efficiency Improvements (cont)

- Previously, management reports created by paper summary of waste management records
- Now they are automated, and available either as HTML or Excel reports

Facility Name: Department of the Army - DECAM Ft. Carson									
Address: 1638 Elwell StreetBldg 6236									
EpaID: CO2210020150									
Manifest Doc No.	Line Number	Description-Stream	Profile	EPA Codes	State Codes	Weight (Ton)	Disp Loc	TSDf	TX-Code
002222843	1	IDW PPE (F039)	W81THB-322			0.08	AR	Rineco	
002222843	2	IDW Liquid Purge Water (F039)	W81THB-303			0.02	AR	Rineco	
002222843	3	IDW Liquid Purge Water (D040, F039)	W81THB-305	F002		0.09	AR	Rineco	
004863029	1	PCB Articles Ballasts	W81THB-00001	PCB 1		0.31	LA	Lamp Recyclers of Louisiana (LE)	
004863029	2	PCB Articles Ballasts	W81THB-00001	PCB 1		0.30	LA	Lamp Recyclers of Louisiana (LE)	
004863029	3	PCB Articles Ballasts	W81THB-00001	PCB 1		0.30	LA	Lamp Recyclers of Louisiana (LE)	
004863019	1	Used Solvents (STP) Lab	W81THB-00004	D001		0.01	KY	American Environmental Services, INC. (KY)	
004863019	2	Chemical residue from aerosol cans	W81THB-109	D039, D040, D001, D035		0.20	KY	American Environmental Services, INC. (KY)	
004863019	3	Used Titrator from AOAP Lab	W81THB-100	D022, D001, D018, D010		0.07	KY	American Environmental Services, INC. (KY)	
004863019	4	COD Digestion Solution	W81THB-008	D011, D002, D009, D007		0.02	KY	American Environmental Services, INC. (KY)	
004863019	5	Nessler's Reagent (STP LAB)	W81THB-029	D002, D009		0.02	KY	American Environmental Services, INC. (KY)	
004863019	6	Dust Filters (Bulb Crusher)	W81THB-025	D009		0.01	KY	American Environmental Services, INC. (KY)	
004863019	7	Used fixer (Hospital)	W81THB-102	D011		0.55	KY	American Environmental Services, INC. (KY)	

Waste Reduction Goals

- Data needed to drive reduction:
 - Who generates?
 - What is generated?
 - How much is generated?
 - What are trends in waste generation?

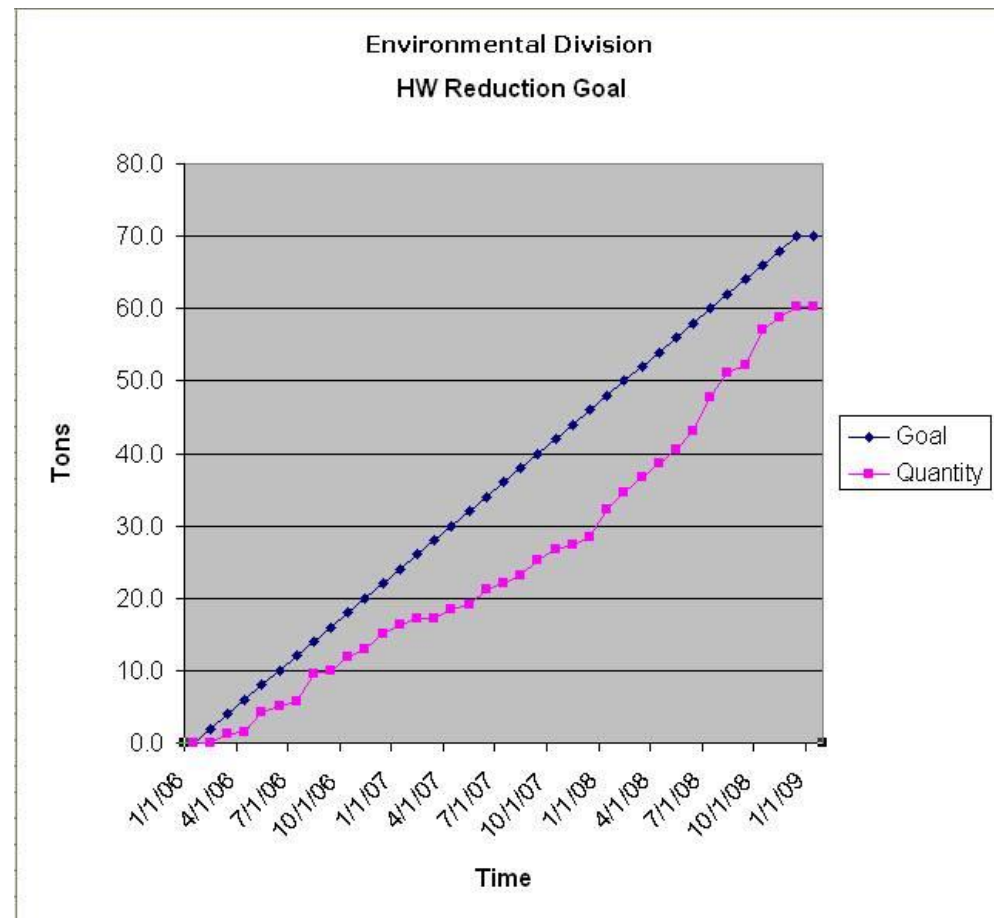
Waste Reduction Goals

- System facilitates tracking of:
 - Source
 - Waste Type
 - Generation frequency

- This data is available:
 - Real-time
 - To all users, as appropriate

Tracking Waste Reduction Trends

- System provides the data necessary to track trends in waste generation
- Can track trends by waste stream, generator or groups of profiles
- Can track trends over different time spans – weeks, months, years



Summary

- Enviance Waste Management system used to track data required by Ft. Carson waste management
- Custom configured to meet Ft. Carson needs
- Automates reports and data required by DRMO
- Reduces duplicate entry
- Reduces Biennial reporting time
- Increases data accuracy and consistency
- Allows for trending and waste reduction reporting
- Secure and controlled access for users (based on their job functions, authority, etc.)

Contact Information

Government Technical Monitor

Mr. Peter Heinricher, ERDC-CERL
(217) 398-5510
peter.m.heinricher@usace.army.mil

Ft. Carson, Point of Contact

Mr. Don Sullivan
(719) 526-8003
donald.sullivan1@us.army.mil

www.ndcee.ctc.com

NDCEE Project Manager

Ms. Angie Degory, CTC/NDCEE
(814) 269-2704
degorya@ctc.com

Enviance Point of Contact

Mr. Steve Paff
(412) 253-7337
spaff@enviance.com

Mr. Neil Gafney
(310) 245-8134
ngafney@enviance.com

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